

### REMARKS

This responds to the decision of the Board of Appeals mailed September 19, 2007 upholding the Office Action mailed on December 31, 2003.

Claims 1, 3, 9-12, 14, 20-22, 24, 25, 27, 33-35, 37, and 38 are amended and are believed to overcome the rejections. 13, 26 and 29. Claims 26, 28 and 39 are cancelled. Claims 1-25, 27 and 29-38 are now pending in this application.

#### §102 Rejection of the Claims

Claims 1, 2, 7, 9-17, 20 and 22-26 were rejected under 35 USC § 102(b) as being anticipated by Wood et al (U.S. Patent No. 5,675,149) and incorporated by reference Wood (U.S. Patent No. 5,420,419). The claims have been amended, and are believed to clearly distinguish the references. Support for the amendments is found at least starting on page 7, line 15 of the application to page 9 line 8.

The present application describes the prior art method of applying a single bias pulse as causing a variation in signal level that “is significantly greater than the signals generated by the incident infrared radiation” at Col. 7, lines 27-28. Claim 1 has been amended to make it clear that “the signal resulting from the rise in temperature caused by the N bias pulses is less than the signal resulting from incident infrared radiation”. Claim 1 has further been modified to recite that “N is 2 or greater, and wherein the N bias pulses have a shorter time duration and frequency, selected to reduce microbolometer temperature variation and noise compared to a time duration of prior single pulses”. As described in the application at the above lines, the use of a single pulse of sufficient duration to provide an accurate reading in a time frame causes a spike in temperature as illustrated in FIG. 4. The use of two or more pulses of shorter duration, referred to as “fast scanning” allows a reduction in the temperature fluctuations, and also, reduces noise as described on page 8 of the present application.

Wood ‘149 provides very little description of multiple scans – see Col. 5, lines 47-55. There is no discussion of changing any pulse parameters for such scans. Similarly, Wood ‘419 uses a single pulse that likely provides an adequate return for producing an image. It also does not describe varying the pulse parameters for multiple scans to reduce temperature variation and noise as claimed. Wood ‘419 indicates that the “... because the bias current is applied in short

pulses, high bias currents can be used which would damage the pixels if applied continuously. The sensitivity of microbolometers is higher with pulsed bias current because the sensitivity improves approximately in proportion to the bias current.” Col. 6, lines 58-63. Thus, the duration would be shortened only to prevent damage to the microbolometers and increase sensitivity. There is no suggestion to vary a bias pulse to reduce heating variations and decrease noise as claimed in claim 1. Thus, the present claims clearly describe a structure that provides multiple bias pulses in series to obtain results that were not contemplated by the combination of the references. Reconsideration and allowance is respectfully requested.

Independent claim 14 has been amended to recite that the N bias pulses are consistent with “fast scanning”. Fast scanning has been described in the application as the use of multiple short pulses that reduce the heating effect caused by single pulse prior art systems. In the prior art references used to reject the claims, the systems that scan multiple times, do not mention any adjustment of the pulse width to reduce heating effects below the heating caused by the incident radiation.

#### §103 Rejection of the Claims

Claims 3-5 were rejected under 35 USC § 103(a) as being unpatentable over Wood et al.(U.S. Patent No. 5,675,149) and incorporated by Wood (U.S. Patent No. 5,420,419) in view of Applicant's Admitted Prior Art. Since these claims depend from claims that are believed allowable, it is requested that the rejection be withdrawn.

Claim 6 was rejected under 35 USC § 103(a) as being unpatentable over Wood et al.(U.S. Patent No. 5,675,149) and incorporated by Wood (U.S. Patent No. 5,420,419) in view of Applicant's Admitted Prior Art as applied to claim 5 above, and further in view of Thiede et al. (U.S. Patent No. 5,129,595). Since this claim depends from a claim that is believed allowable, it is requested that the rejection be withdrawn.

Claims 8, 21, 27, 29, and 33-39 were rejected under 35 USC § 103(a) as being unpatentable over Wood et al.(U.S. Patent No. 5,675,149) and incorporated by reference Wood

(U.S. Patent No. 5,420,419) in view of Duvall, III (U.S. Patent No. 5,258,619). Claim 27 is believed to distinguish the references because none of the references teach or suggest, either alone or combined, the application of two or more bias pulses during a time frame, and furthermore, independent claim 27 has been modified to describe that the bias pulses in the context of the temperature variation caused by the pulses is less than the temperature increase from incident infrared radiation. While the decision of the Board indicates that adjusting various pulse parameters to control heating is known, there is no suggestion to do so to ensure that the temperature variations are less than those induced by the incident infrared radiation as claimed.

Since claims 8, 21, 29 and 33-39 each depend from independent claims which are believed allowable, the rejection should be withdrawn.

Claims 18 and 19 was rejected under 35 USC § 103(a) as being unpatentable over Wood et al.(U.S. Patent No. 5,675,149) and incorporated by Wood (U.S. Patent No. 5,420,419) in view of Thiede et al. (U.S. Patent No. 5,129,595). Since these claims depend from claims that are believed allowable, it is requested that the rejection be withdrawn.

Claims 30-32 was rejected under 35 USC § 103(a) as being unpatentable over Wood et al.(U.S. Patent No. 5,675,149) and incorporated by Wood (U.S. Patent No. 5,420,419) in view Duvall, III as applied to claim 29 above, and further in view of Thiede et al. Since these claims depend from claims that are believed allowable, it is requested that the rejection be withdrawn.

**AMENDMENT AND RESPONSE UNDER 37 CFR § 1.116 – EXPEDITED PROCEDURE**

Serial Number: 09/800366

Filing Date: March 6, 2001

Title: **IMPROVED BOLOMETER OPERATION USING FAST SCANNING**

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**CONCLUSION**

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 373-6972 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

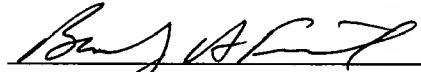
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Date 11/19/2007

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**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 19<sup>th</sup> day of November, 2007.

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